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CLAIMS

810 1. Breaking device (2) for singularizing ceramic conductor plates (18) along
weakening lines (20) on a ceramic conductor plate (18), comprising a
breaking trap (4, 6) having support plates (10, 12) displaceable relative to
one another, which can be displaced from an initial position in which the
support plates (10, 12) adjoin along a breaking line (14) and form a essen-
tially flat support surface (16) into a breaking position in which the support
815 plates (10, 12) are arranged with an angle one to another and a pinning de-
vice (52, 8) formed such that it positions the ceramic conductor plate (18)
for a breaking operation against the support plates (10, 12),

820 characterized in

the breaking trap (4, 6) comprising two support plates (10, 12) which adjoin
along a breaking line (14),

825 the pinning device (52, 8) comprising an oblong engagement section which
is narrow transverse to a longitudinal direction, and

830 the breaking device (2) comprising a positioning element (44) which is
formed such that it can position the weakening lines (20) consecutively in
alignment with and above the breaking line (14).

835 2. Breaking device (2) according to claim 1, characterized in the support plates
(10, 12) comprising breaking line ends (54, 56) adjacent to the breaking lines
(14), wherein the breaking trap (4, 6) is formed such that the breaking line
ends (54, 56) can selectively be displaced upwardly into a breaking position
or downwardly into a breaking position.

- 840 3. Breaking device (2) according to claim 1 or 2, characterized in the engagement section (58, 60) of the pinning device (52, 8) being essentially arranged in parallel to the breaking line (14).
- 845 4. Breaking device (2) according to one of claims 1 to 3, characterized in the pinning device (52, 8) comprising two parallel engagement sections (58, 60).
- 850 5. Breaking device (2) according to claim 4, characterized in the engagement sections (58, 60) being displaceable relative to one another.
- 855 6. Breaking device (2) according to one of claims 1 to 5, characterized in the pinning device (52, 8) comprising a breaking knife (8) which is connected to the breaking device (2) such that it can be positioned above a breaking line (14) and moved in direction of and beyond the breaking line (14), wherein the support plates (10, 12) are arranged resiliently such that the breaking line ends (54, 56) of the support plates (10, 12) are displaced downwardly beyond the breaking line (14) into the breaking position during the course of movement of the breaking knife (8).
- 860 7. Breaking device (2) according to one of claims 1 to 6, characterized in at least one breaking line end (54, 56) of the support plates (10, 12) of the breaking trap (4, 6) being upwardly displaceable, the support plates (10, 12) being arranged such that during movement of the breaking line end (54, 6) upwardly a fragment of the ceramic conductor plate is exposed for gripping.
- 865 8. Breaking device (2) according to claim 7, further comprising a transport element which is formed such that operationally it can be arranged adjacent to the fragment (38) of the ceramic conductor plate (18) and be displaced to transport away the fragment (38).

- 870 9. Breaking device (2) according to claim 8, characterized in the positioning
element (44) being simultaneously the transport element.
- 875 10. Breaking device (2) according to one of claims 1 to 9, further comprising a
coupling device (30) which is connected to the support plates (10, 12) of the
breaking trap (4, 6) such that the movements of the support plates (10, 12)
are synchronized.
- 880 11. Breaking device (2) according to one of claims 1 to 10, characterized in a
control being provided, which coordinates the movements of the breaking
trap (4, 6) with the movement of further elements (52, 8, 44) of the breaking
device (2) and comprises an input interface through which the measure–
ments of the ceramic conductor plates (18) to be singularized and the posi–
tion and/or the distances of the weakening lines (20) arranged thereon
and/or the breaking direction can be input.
- 885 12. Breaking device (2) according to one of claims 1 to 11, characterized in that,
a retardation means (42) for the ceramic conductor plate (18) is provided.
- 890 13. Breaking device (2) according to one of claims 1 to 12, characterized in that
a turning device is provided with which operationally the ceramic conductor
plate (18) to be processed and/or its fragments (38) can be rotated about an
axis which is perpendicular to the support plates (10, 12).
- 895 14. Breaking device (2) according to one of claims 1 to 13, characterized in that
a second breaking trap (6) is provided which is arranged in the breaking
device (2) such that its breaking line (14) viewed in the plane of the support
plates (10, 12) is arranged with an angle relative to the breaking line of the
first breaking trap (4).
- 900 15. Method for singularizing ceramic conductor plates (18) along weakening
lines (20) of the ceramic conductor plate (18), comprising the following
steps:

- 905 (a) providing a breaking trap (4, 6) having two support plates (10, 12) displaceable relative to one another which can be displaced from an initial position in which the support plates (10, 12) adjoin along a breaking line (14) and form an essentially flat support surface (16) to a breaking position in which both support plates (10, 12) are arranged with an angle toward one another;

910 (b) positioning a ceramic conductor plate (18) on the support plates (10, 12) in the initial position such that a weakening line (20) along which breaking should occur is essentially above the breaking line (14);

915 (c) lowering a pinning device (52) comprising two oblong engagement sections (58, 60) on the ceramic conductor plate (18) such that they transmit a pinning force onto the ceramic conductor plate (18) in the zone of two weakening lines (20) adjacent to the weakening line (20), along which breaking should occur;

920 (d) breaking the ceramic conductor plate (18) by raising the breaking line ends (54, 56) of the support plates (10, 12) of the breaking trap (4, 6) upwardly into the breaking position;

925 (e) raising the pinning device (52) and releasing the fragments (38) of the ceramic conductor plate (18);

(f) returning the support plates (10, 12) into the initial position;

930 (g) positioning the ceramic conductor plate (18) on the support plates (10, 12) such that a further weakening line (20) along which breaking should occur is positioned essentially above the breaking line (14); and

935 (h) repeating steps (c) to (g) until the ceramic conductor plate (18) is broken along the weakening lines (20) along which breaking should occur.

16. Method for singularizing ceramic conductor plates (18) along weakening lines of a ceramic conductor plate (18) comprising the following steps:

- 940 (a) providing a breaking trap (4, 6) with two support plates (10, 12) displaceable relative to one another, which can be moved from an initial position in which the support plates (10, 12) adjoin along a breaking line (14) and form an essentially flat surface (16) into a breaking position in which the two support plates (10, 12) are arranged with an angle toward one another;
- 945 (b) positioning a ceramic conductor plate (18) on the support plates (10, 12) in the initial position such that a weakening line (20), along which breaking should occur, is essentially above the breaking line (14);
- 950 (c) breaking the ceramic conductor plate (18) by lowering a breaking knife (52, 8) essentially aligned with the weakening line (20) against the weakening line (20) and against a predetermined force of the support plates (10, 12) and thereby downwardly displacing the support plates (10, 12) into the breaking position;
- 955 (d) raising the breaking knife (52, 8);
- (e) returning the support plates (10, 12) to the initial position;
- 960 (f) positioning the ceramic conductor plate (18) on the support plates (10, 12) such that a further weakening line, along which breaking should occur, is positioned essentially above the breaking line (14); and
- 965 (g) repeating the steps (c) to (f) until the ceramic plate is broken along the weakening lines (20), along which breaking should occur.

17. Method according to claim 15 or 16, further comprising the step of displacing the support plates (10, 12) upwardly to a gripping position to enlarge the gap between the fragments (38, 18) of a ceramic conductor plate (18).

18. Method according to claim 17, further comprising gripping in the gap between the fragments (38, 18) and transporting away one of the fragments (38).

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19. Method according to one of claims 15 to 18, wherein the movements of the support plates (10, 12) are performed synchronously.
20. Method according to one of claims 15 to 19 comprising the step of retard–
980 ing the ceramic conductor plate (18) after positioning.